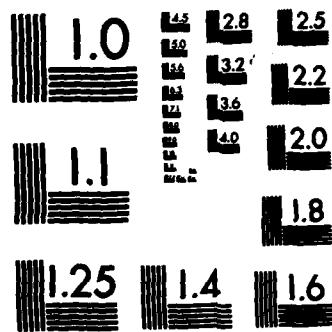


AD-A125 194 19319A MLRS MISSILE NUMBERS BN-006 BN-003 BN-001 BN-004 1/1
BN-002 BN-005 ROU. (U) ARMY ELECTRONICS RESEARCH AND
DEVELOPMENT COMMAND WSMR NM ATM. D C KELLER JAN 83
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Jan 83
DR 1283

AJ

METEOROLOGICAL DATA REPORT

19919A MLRS

Missile Numbers BN-006, BN-003, BN-001, BN-004, BN-002, BN-005
Round Numbers V-390/DL-7, V-391/DL-8, V-392/DL-9, V-393/DL-10
V-394/DL-11, V-395/DL-12

by

DONALD C. KELLER
Program Support Coordinator
Phone Number (505) 679-9568
AVN Number 349-9568

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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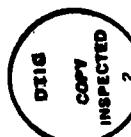
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Metereological data gathered for the launching of the 19319A MLRS, Missile Numbers BN-006, BN-003, BN-001, BN-004, BN-002, BN-005, Round Numbers V-390/DL-7, V-391/DL-08, V-392/DL-9, V-393/DL-10, V-394/DL-11, V-395/DL-12 are presented in tabular form.		

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Justification	
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Availability Codes	
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	Special
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INTRODUCTION

19319A MLRS, Missile Numbers BN-006, BN-003, BN-001, BN-004, BN-002 and BN-005, Round Numbers V-390/DL-7 Thru V-395/DL-12, were launched from LC-33, White Sands Missile Range (WSMR). New Mexico, at 0930:51, 0930:56, 0931:01, 0931:05, 0931:10 and 0931:14 MST, 11 Jan 83. The scheduled launch times were 0830 MST with a 4.5 second separation.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

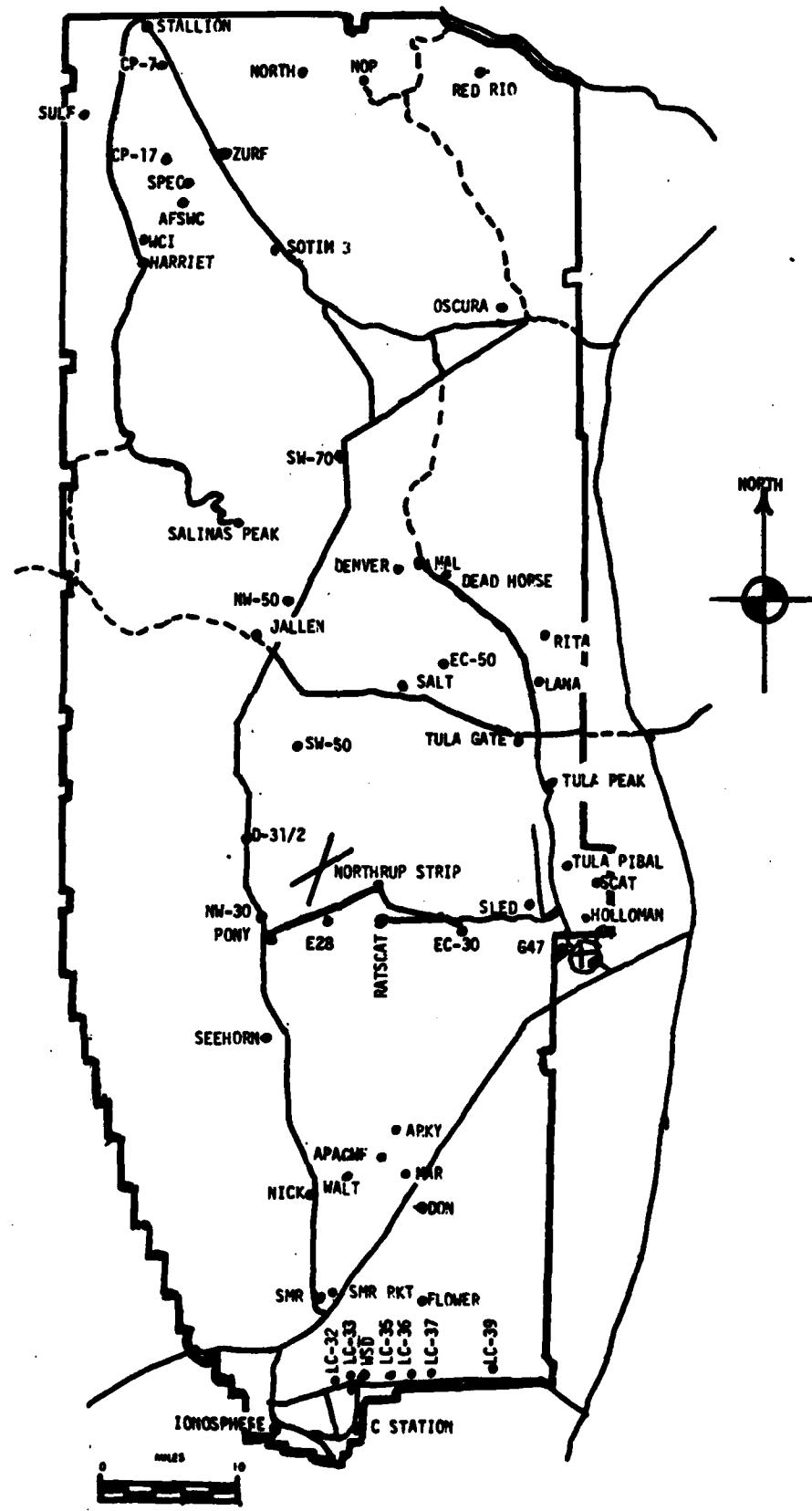
(1) Low level wind data were obtained from pilot-balloon observations at:

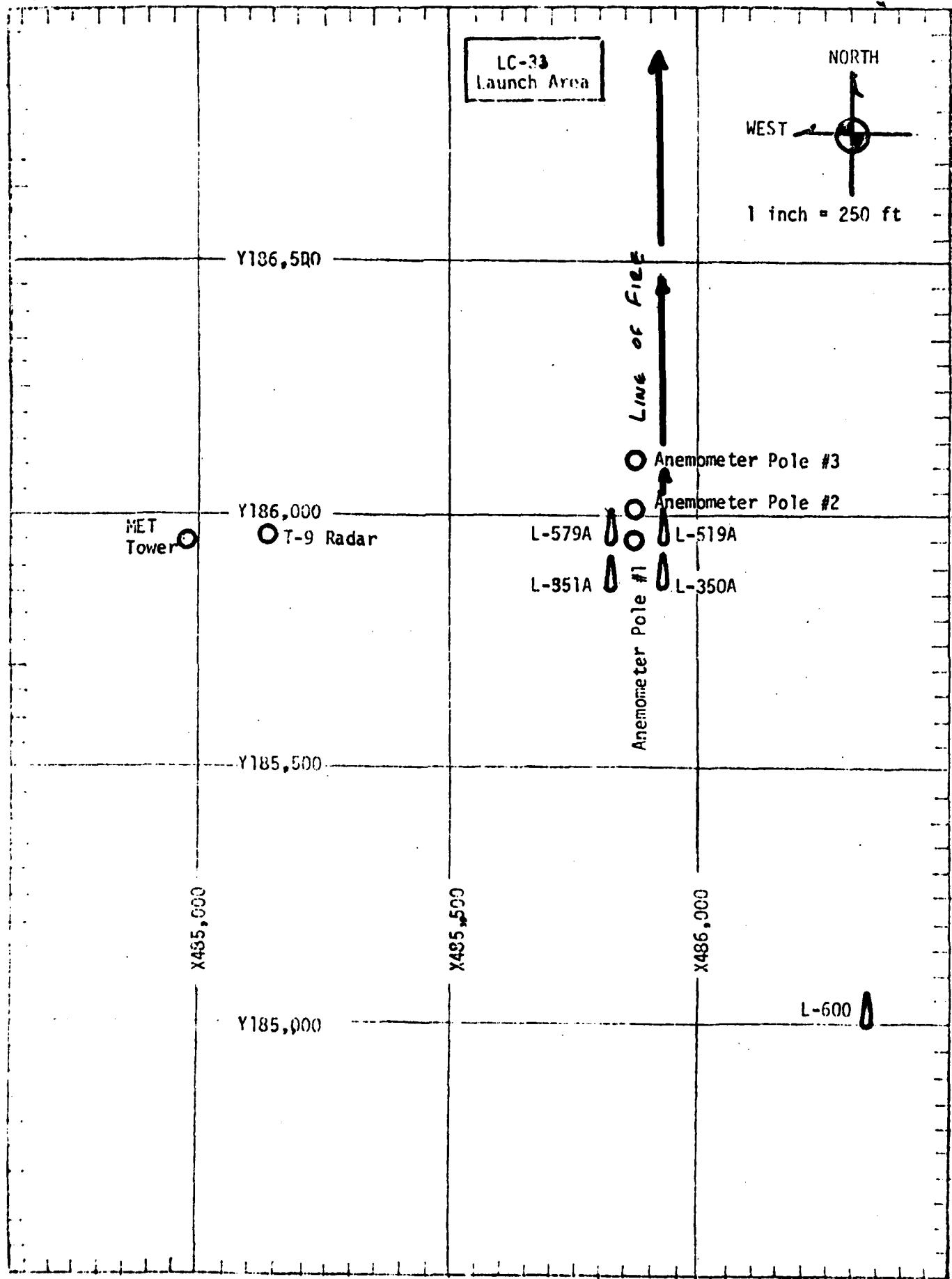
SITE AND ALTITUDE
WSD 2km
DON 2km

(2) Air structure data (rawinsonde) were collected at the following Met Sites.

SITE AND TIME
LC-37 0700 MST
WSD 0800 MST
LC-37 0930 MST

WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

TABLE 1

DATE 11-01-83
TIME 0930

STATION LC-33 E & A

X = 484,982.64 Y = 185,957.73 H = 3995.00

TIME H M S	PRESSURE mb	TEMPERATURE °F °C	DEW POINT °C	RELATIVE HUMIDITY %	DENSITY gm/m ³	WIND DIRECTION deg. Tn	WIND SPEED kts	CHARACTER kts	VISIBIL- ITY
0930	887.5	19.1	-4.2	39	1094	063	04		75

OBSTRUCTIONS TO VISIBILITY	CLOUDS			REMARKS		
	1st LAYER AMT	TYPE	HGT	2nd LAYER AMT	TYPE	HGT
0	CI	25,000				

PSYCHROMETRIC COMPUTATION

TIME: MST	0930	
DRY BULB TEMP.	9.1	
WET BULB TEMP.	3.3	
WET BULB DEPR.	5.8	
DEW POINT	-4.2	
RELATIVE HUMID.	39	

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T-30	016	05	T-30	022	04	T-30	021	07
T-20	016	05	T-20	019	04	T-20	015	08
T-10	014	06	T-10	007	05	T-10	012	08
T0.0	010	05	T0.0	002	05	T0.0	012	08
T+10	001	07	T+10	360	04	T+10	004	08

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T-30	036	03	T-30	034	05
T-20	040	04	T-20	016	04
T-10	038	04	T-10	022	04
T0.0	063	04	T0.0	004	03
T+10	032	06	T+10	019	06

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T-30	045	06	T-30	015	04
T-20	032	05	T-20	028	06
T-10	030	05	T-10	016	07
T0.0	043	06	T0.0	030	06
T+10	042	05	T+10	036	07

TABLE 4

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 11 Jan 83

SITE: WSD
 TIME: 0931 MST
 WSTM COORDINATES:
 X= 488,852.29
 Y= 184,982.45
 H= 3,993.75

SITE: DON
 TIME 0932 MST
 WSTM COORDINATES:
 X= 511,988.37
 Y= 247,396.36
 H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	355	08
150	005	12
210	010	13
270	012	14
330	010	13
390	005	10
500	356	13
650	012	14
800	035	09
950	117	08
1150	124	05
1350	057	04
1550	299	07
1750	278	09
2000	300	09

Data obtained from NIKE-HERCULES
 Radar Tracked Pilot-Balloon
 observation.

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE		CALM
150	014	08
210	012	10
270	007	10
330	002	10
390	360	10
500	359	11
650	011	12
800	043	06
950	124	04
1150	032	03
1350	318	05
1550	290	06
1750	304	08
2000	293	09

Data obtained from a Single-Theodolite
 Tracked Pilot-Balloon observation.

TABLE 5

AIMING AND T-TIME COMPUTER MET MESSAGES

11 Jan 83

LC-37 0700 MST	WSD 0800 MST
METCM1324063	METCM1324064
111400124884	111500122886
00640005 27110884	00000000 27330886
01003022 27760873	01021011 27700875
02013020 27950847	02013017 27950849
03014022 27940806	03019017 28060809
04573013 28130759	04570010 28210761
05543009 27990714	05504007 28030716
06453009 27680672	06490010 27730674
07514014 27300631	07528013 27400633
08543015 26960593	08558015 27050595
09540017 26560556	09539016 26660558
10529018 26200522	10523018 26270524
11522020 25760488	11528020 25870491
12580022 25080442	12561017 25260444

LC-37 0930 MST
METCM1324063
111550124885
00622004 27980885
01021012 27960874
02638013 28110848
03089008 28140808
04618001 28120761
05525009 27990716
06539012 27710673
07535014 27380633
08550015 27060595
09533014 26680558
10505017 26260523
11525017 25850490
12551013 25240443

STATION ALTITUDE 4051.37 FEET MSL
 11 JAN. 43 0700 HRS MST
 ASCENSION NO. 1

SIGNIFICANT LEVEL DATA
 0110120001
 LC-37

GEODETIC COORDINATES
 32°40'17.5" LAT LRG
 106°31'23.2" LON LRG

TABLE 6

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL.HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
883.9	4051.4	-2.3	-5.8	77.0
878.4	4216.3	4.6	-6.3	45.0
850.0	5097.7	5.9	-9.9	31.0
830.9	5451.1	6.0	-9.4	32.0
833.5	5624.8	6.2	-9.6	31.0
806.7	6502.6	5.2	-11.8	28.0
774.9	7505.9	7.8	-13.7	20.0
753.9	8128.9	7.5	-14.6	19.0
739.2	8462.4	6.7	-15.0	17.0
728.1	9271.9	7.0	-17.1	16.0
700.0	10331.8	5.9	-16.6	18.0
642.2	12627.2	.8	-21.4	17.0
632.5	13027.8	-.6	-23.3	16.0
603.3	14264.3	-2.5	-24.8	16.0
558.3	16265.5	-7.8	-29.8	15.0
540.6	17087.3	-8.9	-30.7	15.0
500.0	19055.3	-14.1	-35.0	15.0
453.9	21438.9	-20.7	-39.2	17.0
445.4	21897.5	-22.2	-40.0	18.0
400.0	24460.5	-28.2	-45.2	22.0

STATION ALTITUDE 4051.37 FT. S.L.
11 JAN. 63 0700 HRS. MST
ASCLNSH N0. 1

UPPER AIR DATA
0110160001
LC-37
TABLE 7

GEOMETRIC PRESSURE ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	DEWPOINT TEMPERATURE AIR DEGREES CENTIGRADE	REL.HUM. PERCENT	SILENCE OF SOUND METER	WIND DATA		INDEX OF REFRACTION
					DIRECTION WEARLES (IN)	SPEED KNOTS	
4051.4	885.9	-2.3	-5.8	77.0	1134.9	641.7	360.0
4500.0	869.2	5.0	-7.3	40.5	1086.8	650.3	2.2
5000.0	853.1	5.8	-9.4	32.6	1064.2	651.0	3.1
5500.0	837.4	6.1	-9.5	31.7	1043.4	651.4	3.6
6000.0	821.9	5.8	-10.5	29.7	1025.3	651.0	3.9
6500.0	806.8	5.2	-11.8	28.0	1008.5	650.3	3.5
7000.0	791.9	6.4	-12.5	24.3	985.8	651.7	2.9
7500.0	777.4	7.6	-13.5	20.6	963.6	653.1	352.1
8000.0	763.1	7.6	-14.2	19.4	945.9	650.1	334.6
8500.0	749.2	7.9	-14.7	18.4	927.7	653.4	322.2
9000.0	735.5	8.1	-15.7	16.7	910.0	653.7	312.9
9500.0	722.0	6.8	-16.9	16.4	897.8	652.1	303.2
10000.0	708.7	6.2	-16.7	17.4	882.8	651.5	290.1
10500.0	695.6	5.5	-16.9	17.9	866.8	650.6	275.9
11000.0	682.7	4.4	-18.0	17.7	856.1	649.3	268.7
11500.0	670.0	3.3	-19.0	17.5	843.6	648.0	265.4
12000.0	657.5	2.2	-20.1	17.3	831.3	646.7	275.6
12500.0	645.5	1.1	-21.2	17.1	819.2	645.4	284.0
13000.0	633.2	-0.5	-23.1	16.1	808.6	643.5	289.2
13500.0	621.0	-1.3	-23.8	16.0	795.7	642.5	293.5
14000.0	609.4	-2.1	-24.5	16.0	782.8	641.6	297.7
14500.0	597.8	-3.1	-25.4	15.9	770.9	640.3	301.9
15000.0	586.4	-4.4	-26.7	15.6	759.9	638.7	305.7
15500.0	575.1	-5.8	-27.9	15.4	749.0	637.2	305.7
16000.0	564.1	-7.1	-29.2	15.1	738.3	635.6	305.7
16500.0	553.2	-8.1	-30.1	15.0	726.9	634.3	304.5
17000.0	542.5	-8.8	-30.6	15.0	714.6	633.5	302.7
17500.0	531.8	-10.0	-31.6	15.0	703.8	632.1	300.8
18000.0	521.4	-11.3	-32.7	15.0	693.5	630.5	298.6
18500.0	511.1	-12.6	-33.6	15.0	683.3	628.9	296.5
19000.0	501.1	-14.0	-34.9	15.0	673.3	627.3	294.4
19500.0	491.1	-15.3	-35.8	15.4	663.4	625.6	292.5
20000.0	481.2	-16.7	-36.6	15.8	653.0	623.9	298.5
20500.0	471.5	-18.1	-37.5	16.2	643.9	622.2	304.5
21000.0	462.1	-19.5	-38.4	16.6	634.4	620.5	313.6
21500.0	452.8	-20.9	-39.3	17.1	625.2	618.0	321.3
22000.0	443.5	-22.4	-40.1	18.2	616.1	610.9	326.0
22500.0	434.3	-23.6	-40.7	18.9	606.2	615.5	329.7
23000.0	425.3	-24.8	-41.3	19.7	596.5	614.0	330.2
23500.0	416.5	-25.9	-41.9	20.5	586.9	612.6	31.4

GEODETIC COORDINATES
32.40175 LAT UEG
106.31232 LONG E

STATION ALTITUDE 4051.37 FT. T.SL
11 JAN. 83 0700 HRS. NST
ASCENSION NO. 1

UPPER AIR UNIT
0110180001
LC-37
TABLE 7 Cont'd

GEOMETRIC ALTITUDE IN FEET	PRESSURE IN MILLIBARS	TEMPERATURE IN DEGREES CELSIUS	DEWPOINT IN DEGREES CELSIUS	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND IN KNOTS	WIND DATA DIRECTION IN DEGREES FROM NORTH	WIND SPEED IN KNOTS	INDEX OF REFRACTION
24000.0	407.9	-27.1	-42.6	21.3	577.4	611.1			1.000129

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

STATION ALTITUDE 4051.37 FEET
11 JAN. 83 0700 HRS. MST
ASCESSION NO. 1

MANDATORY LEVELS
0110100001
LC-37
TABLE 0

GEODETIC COORDINATES
32°40'17" LAT DEG
106°31'23" LON DEG

PRESSURE MILLIBARS	EUPOTENTIAL FEET	TEMPERATURE DEGREES	AIR DEPOINT CENTIGRADE	REL.HUM. PERCENT		WIND DATA	
				DIRECTION DEGREES (TN)	SPEED KNOTS	DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	5094.	5.9	-9.9	31.	3.3	15.7	
800.0	6721.	5.7	-12.1	26.	3.3	19.1	
750.0	8462.	7.8	-14.7	18.	322.8	12.1	
700.0	10322.	5.7	-16.6	18.	278.6	7.8	
650.0	12295.	1.5	-20.7	17.	281.0	10.6	
600.0	14320.	-2.9	-25.2	16.	301.1	14.6	
550.0	16626.	-8.3	-30.3	15.	304.0	17.5	
500.0	19028.	-14.1	-35.0	15.	294.2	19.2	
450.0	21615.	-21.4	-39.6	17.	322.6	22.9	
400.0	24426.	-28.2	-43.2	22.			

STATION ALTITUDE 5989.60 FT. MSL
11 JAN. 83 0800 HRS MST
ASCENSION NO. 11

SIGNIFICANT LEVEL DATA
0110020011
WHITE SANDS
TABLE 9

GEODETIC COORDINATES
32°40.0' LAT UEG
106°37.0' LONG UEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE DEGREES CENTIGRADE	AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
886.3	3989.0	-1	-4.9	70.0
880.2	4171.3	1.9	-8.5	46.0
869.7	4491.4	5.6	-8.6	35.0
850.5	4808.1	5.6	-10.2	31.0
850.0	5106.9	6.2	-10.1	30.0
839.3	5447.7	6.2	-10.9	28.0
819.5	6090.6	6.7	-11.9	25.0
809.4	6424.6	6.3	-12.7	24.0
786.1	7214.3	6.8	-12.9	20.0
770.6	7754.4	6.1	-14.1	19.0
740.7	8828.5	9.2	-14.5	17.0
700.0	10355.0	5.3	-17.1	16.0
684.1	10970.5	4.6	-17.6	18.0
670.9	11491.3	4.1	-18.7	17.0
656.3	12077.1	2.4	-20.1	17.0
620.7	13550.1	0.3	-23.0	16.0
500.0	19098.7	-13.3	-34.3	15.0
469.0	20688.6	-17.4	-36.5	17.0
448.8	21767.6	-20.2	-37.8	19.0
435.3	22510.2	-21.5	-38.4	20.0
400.0	24537.3	-27.4	-42.5	22.0
344.3	28025.3	-36.3	-50.6	21.0
324.2	29369.1	-39.7	-53.1	22.0
300.0	31116.8	-44.7		
293.6	31575.7	-45.9		
275.8	32053.7	-48.4		
270.4	33149.1	-49.8		
255.9	34560.2	-52.8		
250.6	35855.1	-53.6		
252.7	36476.5	-54.7		
210.1	34121.3	-57.2		
180.7	36642.7	-57.2		
175.5	39170.6	-59.5		
170.0	42757.4	-67.0		
162.1	41610.2	-61.0		
172.1	42167.1	-61.0		
151.5	45489.2	-71.0		
150.0	45592.0	-67.1		
140.0	48503.1	-69.4		
110.6	50050.5	-62.9		

STATION ALTITUDE 3989.00 FEET : SL
11 JAN. 1953
0000 HRS MST
ASCENSION NO. 11

SIGNIFICANT LEVEL DATA
0110020011
WHITE SANDS
TABLE 9 Cont'd

GEODETIC COORDINATES
32°40'04.3 LAT DEG
106°37'03.3 LON DEG

PRESSURE GEOMETRIC MILLIBARS	ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
109.9	52002.3	-61.8	
108.0	52358.0	-62.3	
102.5	53423.0	-62.3	
100.0	53924.1	-65.0	
97.6	55473.1	-65.4	
84.8	57251.7	-62.7	
72.6	60379.4	-67.1	
70.0	61112.0	-63.6	
50.7	64150.4	-61.8	
56.9	65340.3	-58.5	
52.9	66848.5	-60.1	
50.0	68012.8	-59.4	
45.8	69825.0	-60.1	
44.5	70421.7	-58.0	
41.4	71924.2	-58.4	
39.0	78724.0	-51.9	
24.1	83430.4	-50.8	
20.0	87469.6	-48.6	
17.7	90124.4	-49.5	
15.4	93160.2	-47.1	
13.1	96707.1	-47.2	

STATION ALTITUDE 3489.00 FEET MSL
11 JAN. 63 0800 HRS MST
ASIGN NO. 11

UPPER AIR DATA
0110020011
WHITE SANDS
TABLE 10

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE DEGREES CENTIGRADE	AIR UEMPOINT PERCENT	REL.HUM. PERCENT	SPEED OF SOUND METER KNOTS	WIND DATA DIRECTION DEGREES(TIN) KNOTS	INDEX OF REFRACTION
3989.0	986.3	-1	-4.9	70.0	1128.7	644.5	.0
4000.0	985.9	.0	-5.1	68.6	1127.8	644.5	.0
4500.0	869.4	5.6	-8.7	34.9	1085.1	650.9	.1
5000.0	853.4	6.0	-10.1	30.4	1063.7	651.3	.1
5500.0	837.7	6.2	-11.0	27.8	1043.2	651.6	.4
6000.0	822.3	6.6	-11.8	25.4	1022.7	652.0	.7
6500.0	807.1	6.5	-12.7	23.6	1004.3	651.9	.8
7000.0	792.4	8.1	-12.8	21.1	980.3	653.7	.9
7500.0	777.9	8.4	-13.5	19.5	961.4	654.1	.9
8000.0	763.7	8.4	-14.2	18.5	944.1	654.0	.9
8500.0	749.7	8.9	-14.4	17.6	925.2	654.6	.9
9000.0	736.0	8.8	-14.8	17.1	908.6	654.4	.9
9500.0	722.5	7.5	-15.6	17.4	896.0	652.9	.9
10000.0	709.3	6.2	-16.5	17.6	883.7	651.4	.9
10500.0	696.2	5.1	-17.2	18.0	870.6	650.2	.9
11000.0	683.3	4.6	-17.7	17.9	856.4	649.0	.9
11500.0	670.7	4.1	-18.7	17.0	842.1	648.9	.9
12000.0	658.2	2.6	-19.9	17.0	830.9	647.2	.9
12500.0	645.9	1.6	-20.9	16.7	818.3	646.0	.9
13000.0	633.8	.7	-21.9	16.4	805.7	644.9	.9
13500.0	621.9	-.2	-22.9	16.0	793.3	643.8	.9
14000.0	609.9	-1.4	-23.9	15.9	781.3	642.4	.9
14500.0	598.1	-2.5	-25.0	15.8	769.6	641.0	.9
15000.0	586.6	-3.7	-26.0	15.7	758.0	639.0	.9
15500.0	575.3	-4.9	-27.0	15.6	746.7	638.2	.9
16000.0	564.2	-6.0	-28.0	15.6	735.5	636.8	.9
16500.0	553.3	-7.2	-29.0	15.5	724.5	635.4	.9
17000.0	542.6	-8.4	-30.1	15.4	713.7	634.0	.9
17500.0	532.1	-9.6	-31.1	15.3	703.1	632.6	.9
18000.0	521.9	-10.7	-32.1	15.2	692.6	631.2	.9
18500.0	511.8	-11.9	-33.1	15.1	682.3	629.6	.9
19000.0	501.9	-13.1	-34.1	15.0	672.1	628.4	.9
19500.0	492.0	-14.3	-34.9	15.5	662.1	626.8	.9
20000.0	482.2	-15.6	-35.5	16.1	652.1	625.3	.9
20500.0	472.6	-16.9	-36.2	16.8	642.3	623.7	.9
21000.0	463.1	-18.2	-36.8	17.6	632.6	622.1	.9
21500.0	453.7	-19.5	-37.4	18.5	623.0	620.5	.9
22000.0	444.5	-20.6	-37.9	19.3	613.1	619.2	.9
22500.0	435.5	-21.5	-38.4	20.0	602.7	616.1	.9
23000.0	426.5	-22.9	-39.3	20.5	593.7	616.3	.9

STATION ALTITUDE 3989.00 FT T.SL
11 JAN. 83 0600 HRS MST
ASCLNSION NO. 11

UPPER AIR DATA
0110020011
WHITE SANDS
TABLE 10 Cont'd

GEODETIC COORDINATES
32.4443 LAT DEG
106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES C.	DEWPOINT DEGREES C.	REL.HUM. PERCENT	GM/CUBIC METER	SOUND SPEED KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
23500.0	417.7	-24.4	-40.4	21.0	584.8	614.5	315.3	15.4	1.000131
24000.0	409.1	-25.8	-41.4	21.5	576.1	612.7	315.3	16.7	1.000129
24500.0	400.6	-27.3	-42.4	22.0	567.6	610.9	314.5	18.2	1.000127
25000.0	392.1	-28.6	-43.6	21.9	558.5	609.5	325.2	17.1	1.000125
25500.0	383.6	-29.9	-44.7	21.7	549.5	607.7	336.6	16.2	1.000123
26000.0	375.6	-31.1	-45.9	21.6	540.6	606.1	348.6	14.1	1.000121
26500.0	367.6	-32.4	-47.1	21.4	531.9	604.5	359.5	12.8	1.000119
27000.0	359.6	-33.7	-48.2	21.3	523.4	602.9	359.5	11.6	1.000117
27500.0	352.2	-35.0	-49.4	21.2	515.0	601.3	359.5	11.2	1.000115
28000.0	344.7	-36.2	-50.5	21.0	506.6	599.7	360.2	11.2	1.000113
28500.0	337.2	-37.5	-51.5	21.3	498.4	598.1	358.6	11.3	1.000111
29000.0	329.8	-38.7	-52.4	21.7	490.1	596.5	355.3	11.3	1.000109
29500.0	322.6	-40.0	-54.0	20.6*	482.0	594.0	350.1	10.9	1.000108
30000.0	315.4	-41.5	-56.0	14.2*	474.3	593.0	344.2	10.7	1.000106
30500.0	308.4	-42.9	-63.8	7.9*	466.7	591.1	337.1	10.6	1.000104
31000.0	301.6	-44.4	-76.3	1.5*	459.2	589.3	328.8	10.6	1.000102
31500.0	294.8	-45.7			451.5	587.5	317.7	10.7	1.000101
32000.0	288.1	-46.7			443.2	586.3	304.6	11.2	1.000099
32500.0	281.6	-47.6			434.9	585.1	287.7	12.4	1.000097
33000.0	275.2	-48.6			426.9	583.8	278.0	14.6	1.000095
33500.0	268.9	-50.2			420.1	581.7	276.0	17.4	1.000094
34000.0	262.7	-51.4			412.7	580.1	275.9	20.4	1.000092
34500.0	256.6	-52.7			405.4	578.5	275.4	23.7	1.000090
35000.0	250.7	-53.5			397.4	577.4	272.6	26.2	1.000089
35500.0	244.8	-53.9			389.0	576.8	267.0	27.9	1.000087
36000.0	239.1	-54.3			380.5	576.3	262.6	30.8	1.000085
36500.0	233.5	-54.6			372.2	575.9	259.4	34.9	1.000083
37000.0	228.0	-55.4			364.7	574.9	258.5	38.9	1.000081
37500.0	222.6	-56.2			357.4	573.8	256.5	43.0	1.000080
38000.0	217.4	-57.0			350.3	572.8	259.1	43.7	1.000078
38500.0	212.2	-57.2			342.3	572.5	259.9	43.5	1.000076
39000.0	207.2	-58.6			333.3	573.3	264.1	41.0	1.000074
39500.0	202.3	-56.7			325.6	573.1	270.0	38.3	1.000073
40000.0	197.5	-57.1			318.5	572.6	275.6	35.2	1.000071
40500.0	192.6	-57.4			311.3	572.2	261.6	32.2	1.000069
41000.0	188.2	-57.7			304.3	571.9	264.0	28.3	1.000068
41500.0	183.8	-57.9			297.5	571.5	284.0	23.7	1.000066
42000.0	179.4	-57.3			289.5	572.4	290.6	18.7	1.000064
42500.0	175.1	-57.5			282.9	572.1	307.0	14.2	1.000063
43000.0	170.9	-58.2			277.1	571.1	323.6	13.7	1.000062

** AT LEAST ONE SIGHTED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.00 FEET MSL
11 JAN. 83 0800 HRS NST
ASCRNSH: NO. 11

UPPER AIR DATA
0110020011
WHITE SANDS
TABLE 10 Cont'd

GEODETIC COORDINATES
32.40043 LAT UEG
106.37035 LON UEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMP. & HUM. AIR DEGREES CENTIGRADE	TYPE OF POINT	REL. HUM. PERCENT	ENSITY GM/CUBIC METER	SHED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (IN) REFRACTION	INDEX OF REFRACTION
43500.0	166.0	-59.0			271.4	570.1	353.2	15.6
44000.0	162.0	-59.7			265.6	569.2	331.8	17.1
44500.0	158.9	-60.4			260.3	568.2	321.3	16.4
45000.0	155.1	-61.2			255.0	567.2	313.0	20.2
45500.0	151.4	-61.9			249.7	566.2	308.5	21.3
46000.0	147.7	-62.3			244.1	565.0	304.5	22.6
46500.0	144.1	-62.7			238.6	565.1	304.3	23.8
47000.0	140.6	-63.1			233.3	564.6	304.6	25.1
47500.0	137.2	-63.5			228.0	564.0	305.8	27.0
48000.0	133.9	-63.9			222.9	563.5	306.6	29.2
48500.0	130.6	-64.3			217.9	563.0	310.0	30.1
49000.0	127.4	-64.1			212.3	563.3	315.0	30.2
49500.0	124.3	-63.7			206.7	563.9	317.9	29.7
50000.0	121.3	-63.3			201.3	564.4	318.9	28.3
50500.0	118.3	-62.9			196.0	564.9	319.5	26.0
51000.0	115.4	-62.5			190.9	565.4	319.2	22.1
51500.0	112.6	-62.2			186.0	565.9	319.1	16.3
52000.0	109.9	-61.5			181.2	566.4	321.3	15.0
52500.0	107.2	-62.3			177.2	565.7	324.2	11.6
53000.0	104.7	-62.3			172.9	565.7	314.8	11.3
53500.0	102.1	-62.6			168.9	565.3	304.9	11.1
54000.0	99.6	-64.1			166.0	565.3	307.6	15.6
54500.0	97.2	-64.5			162.3	562.7	311.4	16.7
55000.0	94.8	-65.0			158.6	562.1	320.2	19.7
55500.0	92.5	-65.4			155.0	561.6	331.6	23.4
56000.0	90.2	-64.6			150.7	562.6	340.1	27.0
56500.0	88.0	-65.8			146.5	563.6	349.2	27.6
57000.0	85.9	-63.1			142.4	564.0	357.7	26.6
57500.0	83.8	-63.0			138.9	564.7	359.3	27.6
58000.0	91.7	-63.8			135.9	563.7	351.6	23.4
58500.0	79.7	-64.5			133.0	562.8	344.6	23.6
59000.0	77.1	-65.2			130.2	561.8	343.8	21.5
59500.0	75.6	-65.9			127.5	560.9	357.5	20.3
60000.0	74.0	-66.6			124.8	559.9	337.3	19.3
60500.0	72.2	-66.6			121.7	560.0	340.6	17.6
61000.0	70.4	-64.3			117.4	563.0	350.9	15.3
61500.0	68.7	-65.6			114.2	564.0	15.1	14.5
62000.0	67.0	-65.3			111.2	564.4	16.3	14.5
62500.0	65.4	-62.9			108.4	564.8	17.3	14.5
63000.0	63.1	-62.6			105.6	565.2	9.6	14.0

STATION ALTITUDE 3989.00 FT. T MSL
1 JAN. 83 0800 HRS. NST
ASCENSION NO. 11

UPPER AIR DATA
011002001
WHITE SANDS
TABLE 10 Cont'd

GEODETIC COORDINATES
32°40'03" LAT DEG
106°37'03" LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	HELIUM AIRPOINT PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION KNOTS	INDEX OF REFRACTION
6500.0	62.2	-62.3		102.9	565.7	.1	1.000023
6400.0	60.7	-62.0		100.2	566.1	.57.9	1.000022
6450.0	59.3	-61.3		97.5	567.0	.0	1.000022
6500.0	57.8	-59.6		94.4	569.3	14.4	2.0
6550.0	56.3	-58.7		91.7	570.5	119.4	1.2
66000.0	55.1	-59.2		89.7	569.8	148.0	2.5
6650.0	53.6	-59.7		87.6	569.1	147.3	1.3
67000.0	52.5	-60.0		85.8	568.6	155.3	1.1
67500.0	51.3	-59.7		83.7	569.2	200.7	1.4
68000.0	50.0	-59.4		81.5	569.6	207.6	0.7
68500.0	48.8	-59.6		79.7	569.3	206.3	0.9
69000.0	47.7	-59.8		77.3	569.1	202.5	0.9
69500.0	46.5	-60.0		76.0	569.8	150.3	0.7
70000.0	45.4	-59.5		74.0	569.5	85.6	2.2
70500.0	44.3	-58.8		71.8	571.4	75.5	4.1
71000.0	43.3	-58.2		70.1	571.2	80.5	5.3
71500.0	42.3	-58.3		68.5	571.1	85.7	6.6
72000.0	41.3	-58.3		66.9	571.0	82.3	6.7
72500.0	40.3	-57.8		65.2	571.6	78.9	6.4
73000.0	39.3	-57.4		63.5	572.3	74.6	6.1
73500.0	38.4	-56.9		61.9	572.9	68.7	6.4
74000.0	37.5	-56.4		60.3	573.5	63.2	6.8
74500.0	36.6	-55.9		58.8	574.2	59.2	7.3
75000.0	35.8	-55.5		57.3	574.8	57.2	7.8
75500.0	34.9	-55.0		55.8	575.4	55.5	6.4
76000.0	34.1	-54.5		54.4	576.1	54.6	6.5
76500.0	33.3	-54.0		53.0	576.7	54.0	6.5
77000.0	32.6	-53.5		51.6	577.3	53.5	6.5
77500.0	31.8	-53.1		50.3	577.9	53.1	6.2
78000.0	31.0	-52.6		49.0	578.6	52.7	7.8
78500.0	30.3	-52.1		47.8	579.2	51.6	7.7
79000.0	29.6	-51.8		46.6	579.6	48.1	6.2
79500.0	28.9	-51.7		45.3	579.7	45.2	6.8
80000.0	28.3	-51.6		44.5	579.9	41.7	9.3
80500.0	27.6	-51.5		43.4	580.0	37.6	9.6
81000.0	27.0	-51.4		42.4	580.6	33.7	10.0
81500.0	26.4	-51.3		41.4	580.3	34.1	10.1
82000.0	25.8	-51.1		40.4	580.5	38.9	10.0
82500.0	25.2	-51.0		39.5	580.6	43.8	10.0
83000.0	24.6	-50.9		38.5	580.8	51.1	9.2

STATION ALTITUDE 5989.00 FT T 1°S,
11 JAN. 83 0800 HRS, MST
ASCENSION NO. 11

UPPER AIR DATA
0110020011
WHITE SANDS
TABLE 10 Cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	DEPOINT CENTIGRADE	REL.HUM. PERCENT	REL.HUM. GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(UT)	INDEX OF REFRACTION
83500.0	24.0	-50.8		37.0	581.0	63.4	7.9	1.000008
84000.0	23.5	-50.5		36.7	581.3	79.5	7.1	1.000008
84500.0	22.9	-50.2		35.8	581.7	91.0	7.3	1.000008
85000.0	22.4	-49.9		35.0	582.0	94.2	6.2	1.000008
85500.0	21.9	-49.7		34.1	582.4	96.8	9.0	1.000008
86000.0	21.4	-49.4		33.3	582.7	96.1	10.0	1.000007
86500.0	20.9	-49.1		32.5	583.1	91.9	11.1	1.000007
87000.0	20.4	-48.9		31.7	583.5	88.5	12.3	1.000007
87500.0	20.0	-48.6		31.0	583.8	86.4	13.0	1.000007
88000.0	19.5	-48.3		30.3	584.5	85.3	13.1	1.000007
88500.0	19.1	-48.0		29.6	583.3	84.3	13.2	1.000007
89000.0	18.6	-49.1		29.0	583.1	82.6	13.5	1.000006
89500.0	18.2	-49.3		28.3	582.9	80.8	14.4	1.000006
90000.0	17.8	-49.5		27.7	582.7	79.0	15.3	1.000006
90500.0	17.4	-49.2		27.1	583.0	77.1	15.6	1.000006
91000.0	17.0	-48.8		26.4	583.5	74.6	14.9	1.000006
91500.0	16.6	-48.4		25.8	584.0	72.2	14.3	1.000006
92000.0	16.2	-48.0		25.1	584.5	69.1	13.4	1.000006
92500.0	15.9	-47.6		24.5	585.1	64.8	11.7	1.000005
93000.0	15.5	-47.2		23.9	585.6	59.2	10.2	1.000005
93500.0	15.2	-47.1		23.4	585.7	51.7	8.6	1.000005
94000.0	14.8	-47.1		22.8	585.7	41.5	7.6	1.000005
94500.0	14.5	-47.1		22.3	585.7			1.000005
95000.0	14.2	-47.2		21.8	585.7			1.000005
95500.0	13.8	-47.2		21.3	585.6			1.000005
96000.0	13.5	-47.2		20.9	585.6			1.000005
96500.0	13.2	-47.2		20.4	585.6			1.000005

STATION ALTITUDE 3989.00 FEET SL
 11 JAN. 83 0800 HRS MST
 ASCENSION NO. 11

MANDATORY LEVELS
 0110020011
 WHITE SANDS
 TABLE 11

GEODETIC COORDINATES
 32°40'43" LAT DEG
 106°37'03" LONG DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE DEGREES CENTIGRADE	AIR TEMP. DEGREES CENTIGRADE	HEI. HUM. PERCENT		WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS
				DEPTN	PERCENT		
850.0	5103.	6.2	-10.1	30.	5.6	11.8	
800.0	6714.	7.3	-12.8	22.	8.1	14.4	
750.0	8492.	8.9	-14.4	18.	30.6	10.3	
700.0	10345.	5.3	-17.1	16.	27.3	8.0	
650.0	12320.	1.9	-20.6	17.	29.4	11.6	
600.0	14421.	-2.3	-24.8	16.	31.1	14.4	
550.0	16665.	-7.6	-29.3	15.	30.0	17.5	
500.0	19072.	-13.3	-34.3	15.	29.4	18.4	
450.0	21669.	-20.0	-37.7	19.	31.6	18.6	
400.0	24476.	-27.4	-42.5	22.	31.5	18.2	
350.0	27599.	-35.3	-49.7	21.	4.9	11.2	
300.0	31055.	-44.7			32.0	10.6	
250.0	34979.	-53.6			27.2	26.3	
200.0	39642.	-57.0			6.7	37.1	
175.0	42410.	-57.5			30.6	14.3	
150.0	45569.	-62.1			30.7	21.7	
125.0	49244.	-63.6			31.7	30.1	
100.0	53758.	-64.0			30.6	13.0	
80.0	58240.	-64.4			35.0	24.1	
70.0	609n3.	-65.8			36.0	15.1	
60.0	64019.	-61.9			35.8	8.3	
50.0	67758.	-59.4			20.7	7	
40.0	72352.	-57.7			7.8	6.3	
30.0	783n9.	-51.9			50.2	7.9	
25.0	822273.	-51.0			44.8	10.0	
20.0	87061.	-48.6			80.5	15.0	
15.0	93271.	-47.1			48.1	8.3	

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.37 FEET MSL
 11 JAN. 63 0930N HRS, WO1
 ASCENSION NO. 2

SIGNIFICANT LEVEL DATA
 0110160002
 LC-37

GEODETIC COORDINATES
 32°40'17.5" LAT LEG
 106°31'23.2" LON LEG

TABLE 12

PRESSURE GEOMETRIC MILLIBARS	ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL.HUM. PERCENT
885.2	4051.4	6.1	39.0
869.8	4554.1	5.8	39.2
855.3	4975.9	7.2	33.0
850.2	5144.2	8.5	29.0
824.7	5961.4	6.8	26.0
807.7	6525.1	9.0	24.0
787.1	7225.7	7.8	20.0
768.6	7863.0	8.5	19.0
741.4	8844.6	6.9	16.0
714.8	9630.1	6.9	17.1
706.0	10393.2	6.9	15.0
634.6	13003.5	5.7	15.0
583.8	15186.8	5.6	15.0
559.4	16289.9	5.6	15.0
506.0	19136.6	-13.5	14.0
426.4	22933.6	-22.9	15.0
406.0	24574.6	-26.9	17.0
		-44.4	17.0

STATION ALTITUDE 4051.37 FEET SL
11 JAN. 83 0930 HRS MST
ASCENSION NO. 2

UPPER AIR DATA
0110180002
LC-37

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

TABLE 13

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL.HUM. PERCENT	WIND DATA SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (1N)	SPEED KNOTS	INDEX OF REFRACTION
4051.4	885.2	6.1	-6.8	39.0	1102.6	651.5	350.0
4500.0	870.6	5.8	-8.9	33.6	1085.6	651.1	2.5
5000.0	854.5	7.4	-9.6	28.6	1059.8	652.9	11.7
5500.0	838.9	7.8	-10.9	25.1	1039.1	653.3	17.7
6000.0	823.5	7.0	-12.3	23.7	1023.1	652.4	21.9
6500.0	808.5	8.9	-12.7	20.2	997.5	654.6	34.8
7000.0	793.7	8.2	-13.8	19.3	981.8	653.8	72.1
7500.0	779.2	8.1	-14.4	18.6	964.2	653.7	77.5
8000.0	764.9	8.3	-14.8	17.7	946.0	653.9	87.1
8500.0	750.9	7.5	-16.2	16.7	931.4	652.9	306.8
9000.0	737.1	6.9	-17.3	15.8	916.2	652.2	303.0
9500.0	723.6	6.9	-17.6	15.3	899.4	652.2	301.4
10000.0	710.3	6.5	-18.2	15.0	884.0	651.8	301.6
10500.0	697.2	5.5	-19.0	15.0	871.0	650.5	302.3
11000.0	684.2	4.5	-19.7	15.2	857.6	649.4	303.0
11500.0	671.5	3.5	-20.3	15.4	844.9	648.2	300.7
12000.0	659.0	2.6	-21.0	15.6	832.1	647.1	298.8
12500.0	646.7	1.6	-21.6	15.8	819.5	645.9	299.5
13000.0	634.7	.6	-22.3	16.0	807.2	644.3	301.0
13500.0	622.7	-4	-23.2	15.8	794.7	643.6	303.4
14000.0	610.9	-1.3	-24.2	15.5	782.5	642.5	306.7
14500.0	599.3	-2.3	-25.1	15.3	770.4	641.3	308.5
15000.0	588.0	-3.2	-26.1	15.1	758.5	640.2	309.3
15500.0	576.8	-4.4	-27.2	14.7	747.2	638.6	307.5
16000.0	565.7	-5.6	-28.6	14.3	736.3	637.4	310.3
16500.0	554.8	-6.8	-29.7	14.1	725.4	635.9	296.9
17000.0	544.0	-8.1	-30.6	14.2	714.7	634.4	289.7
17500.0	533.5	-9.4	-31.5	14.4	704.1	632.8	286.0
18000.0	522.9	-10.6	-32.4	14.6	693.7	631.3	284.3
18500.0	512.7	-11.9	-31.3	14.8	683.5	629.8	286.7
19000.0	502.7	-13.2	-34.3	15.0	673.4	628.2	291.3
19500.0	492.7	-14.4	-35.1	15.2	663.1	626.7	296.0
20000.0	482.7	-15.6	-36.0	15.5	652.9	625.2	301.1
20500.0	473.0	-16.9	-36.8	15.7	642.9	623.7	305.4
21000.0	463.5	-18.1	-37.7	16.0	633.0	622.2	309.0
21500.0	454.1	-19.4	-38.6	16.2	623.2	620.7	311.6
22000.0	445.0	-20.6	-39.4	16.5	613.7	619.2	310.6
22500.0	436.0	-21.8	-40.3	16.8	604.3	617.7	309.8
23000.0	427.2	-23.1	-41.2	17.0	595.0	616.1	309.2
23500.0	418.4	-24.3	-42.2	17.0	585.6	614.0	311.1

STATION ALTITUDE 4051.37 FF, T₁ SL
11 JAN. 83 0930 HRS MST
ASCENSION NO. 2

UPPER AIR DATA

0110180002

LC-37

TABLE 13 Cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL.HUM. DEWPOINT PERCENT	SPEED OF SOUND METER METER	WIND DATA DIRECTION (DEGREES TN)	INDEX OF REFRACTION
24000.0	409.7	-25.5	713.3	17.0	576.3	1.000129
24500.0	401.3	-26.7	744.3	17.0	567.2	1.000127

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

STATION ALTITUDE 4051.37 FT T ^{SL}
 11 JAN. 83 0930 HRS MST
 ASCENSION NO. 2

MANDATORY LEVELS
 0110100002
 LC-37
 TABLE 14

GEODETIC COORDINATES
 32°40'17" LAT DEG
 106°31'23" LON DEG

PRESSURE MILLIBARS	EUPOTENTIAL FEET	TEMPERATURE		REL.HUM. PERCENT	WIND DATA	
		AIR DEGREES	DEWPNT CENTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	5140.	8.5	-9.9	26.	13.6	6.6
800.0	6780.	0.6	-13.3	20.	50.7	4.1
750.0	8526.	7.4	-16.3	17.	506.3	2.1
700.0	10353.	5.7	-18.9	15.	302.2	10.2
650.0	12356.	1.8	-21.4	16.	299.1	14.5
600.0	14457.	-2.2	-25.1	15.	308.5	14.8
550.0	16703.	-7.4	-30.1	14.	293.7	14.0
500.0	19110.	-13.5	-34.5	15.	292.4	17.4
450.0	21707.	-19.9	-39.0	16.	311.2	12.7
400.0	24514.	-26.9	-44.4	17.		

STATION ALTITUDE 4051.37 FT T₄₅ SL
11 JAN. 63 0930 HRS MST
ASCENSION NO. 2

MANDATORY LEVELS
0110180002
LC-37
TABLE 14

GEODETIC COORDINATES
32°40'17.5" LAT DEG
106°31'23.2" LON DEG

PRESSURE MILLIBARS	ELEVATION FEET	TEMPERATURE DEGREES	AIR DEPOINT CENTIGRADE	REL.HUM. PERCENT	WIND DATA	
					DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	5140.	8.5	-9.9	26.	13°6	6.6
800.0	6780.	8.6	-13.3	20.	50°7	4.1
750.0	8526.	7.4	-16.3	17.	306°3	2.1
700.0	10383.	5.7	-18.9	15.	302°2	10.2
650.0	12356.	1.8	-21.4	16.	299°1	14.5
600.0	14457.	-2.2	-25.1	15.	308°5	14.6
550.0	16703.	-7.4	-30.1	14.	293°7	14.0
500.0	19110.	-13.5	-34.5	15.	292°4	17.4
450.0	21707.	-19.9	-39.0	16.	311°2	12.7
400.0	24574.	-26.9	-44.4	17.		